

(c) performing an ashing process on said resist mask using oxygen gas plasma under an atmospheric pressure from 0.01 Torr to 30.0 Torr.

10. (New) A method for forming a multi-layer wiring structure, as described in claim 9 wherein said insulating film between layers of silica system is formed by coating and baking a coating liquid including a chemical compound, being obtained through hydrolysis and condensation reaction of at least one kind of alkoxysilane compounds in organic solvent under presence of an acid catalyst, wherein said one kind of alkoxysilane compounds is selected from alkoxysilane compounds expressed by the following general equation (I):



wherein, R in the general equation (I) indicates an alkyl group having carbon number from 1 to 4 or an aryl group, R^1 indicates an alkyl group having carbon number from 1 to 4, and n indicates an integer from 1 to 2.
